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PDIA To Break Silos and Learn by Doing: A Case Study on the First Stage of Agile Engagement in Croatia's Digital Health System Policy

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INTRODUCTION

The government of Croatia has been committed to adopting digital policy solutions for years. The health sector was a focal point of this commitment. As is the case in many countries, Croatia's health system is quite bureaucratic and generates lots of data—about patients and their care—in bureaucratic silos. The scattered nature of this data has negatively affected both health care quality and cost.

As such, the government has tried for years to centralize data and improve information access. Three interventions stand out:

→ In 2003, the government launched a publicly owned and managed digital platform—the Central Health Care Information System (CEZIH)—to act as a common location for health information.

→ As part of CEZIH, the government introduced an "e-referrals" mechanism whereby:

- Health practitioners could develop electronic referrals for all patients (such that no one would need paper to get an appointment).
- All practitioners would be able to access appointment details and associated medical records on a common digital platform.

→ In 2014, the government launched an "e-results" platform to provide health practitioners with the means to upload medical history and patient records to a common digital platform.

KEY POINTS

→ After years of digital policy reforms in the healthcare sector, the government of Croatia was not seeing progress in the usage and uptake of digital health platforms. Frustrated by this issue, a special advisor to the Prime Minister of Croatia Ivana Vukov decided the government needed to try a more agile approach to solving complex problems.

→ Bringing together key stakeholders from across government silos, the e-health team engaged with hospital administrators, doctors, and other healthcare professionals to understand why these systems were not being used as intended and yielding the desired impacts.

→ PDIA allowed the e-health team to quickly understand the key barriers to uptake of the digital health systems and begin small-scale pilot projects to begin addressing these barriers before scaling up these solutions to the rest of the country.

→ In addition to the concrete progress the team made in addressing this problem, they also learned how to develop trust, safety, and accountability within their team in order to break down silos across government and foster new norms of learning and communication.

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These interventions were all implemented using a plan-and-control type project management method, in which solutions were identified by consultants, planned out, and executed as planned. These policies and management methods were seen as "best practices" given their success in countries like France, who have been seen as leaders in this kind of policy engagement in Europe. The goal of these new policy innovations was to ensure that no paper was ever used in the Croatian medical system and all information was commonly available (subject to privacy concerns and more, of course). This would help to improve treatment efficiency (no paper would be needed, increasing the speed and efficiency of appointments) and quality (given better shared knowledge of patients' treatment histories) and decrease costs (with less duplication of treatments, for instance).

Unfortunately, many health care providers in Croatia did not use the platforms as envisaged. They still required paper-based referrals, for instance, and did not record information in the e-results portals. This has been the norm in other contexts as well, including France.

CROATIA'S HEALTH CARE SYSTEM AND INITIAL DIGITAL POLICY INTERVENTIONS

Croatia's healthcare system is based on the Bismarck and Beveridge models. Almost all citizens are insured through employers, and insurance contributions flow to the Croatian Health Insurance Fund (HZZO), an independent public institution, which serves as the sole purchaser of health services. Patients access primary care from their registered doctor of choice, most of which are private providers. Patients require referrals from primary healthcare practitioners to access specialized services, which are offered at health centers and hospitals.

Each health practitioner, center, or hospital manages and administers its own electronic system to keep track of a patient's medical history. Unfortunately, these systems do not communicate, prompting the creation of CEZIH in 2003. CEZIH is a publicly owned and managed digital platform which can generate electronic referrals (e-referrals) for patients to use anywhere in the health care system. HZZO, its developer, considers the system to be robust with multiple functionalities.

The country increased system functionality in 2014 with "e-results". Health practitioners can upload medical history and patient records to this platform to facilitate the transfer of medical information and support better decision making across the health care system. Additionally, in 2018, the Health Data and Information Act was approved, mandating that all healthcare systems must connect with the central system and all medical histories must be made electronically accessible.

Unfortunately, uptake and use of these systems has been mixed since their deployment. E-referrals are often generated but seldom accepted by health centers. This is to say, health practitioners will almost always generate an e-referral, but when a patient goes to a health center, they may be turned away without a paper copy of the referral even if the center can see the referral in the digital system.

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FRANCE'S HEALTH SYSTEMS POLICY EXPERIENCE

Struggling with complex health care coordination problems and associated cost and quality concerns, French authorities adopted a new national electronic health records policy in the early 2000s.

A new law was passed in 2004 which mandated the creation of a digital records management system. Four years later in 2008, however, the system was still not effectively implemented due to project management challenges and concerns about patient information security.

To address these challenges, the government appointed a dedicated technical agency to take control of system completion and roll-out. The result was rapid; a system was in place by 2011 and it was lauded as a best practice that other countries should copy. But the system was still not widely used, with fewer than 10% of the targeted number of doctors registered by 2012. In a third attempt in 2016, the government appointed the national health insurance fund to revise the plan and take control of implementation.

By 2018, the new initiative had yielded an improved system with twice as many users compared to 2012. Unfortunately, even with this expansion, user coverage was still less than 20% of 2012 goals. Health coordination remains a major problem as do health costs and quality concerns.

Doing Something Different?

This issue was frustrating to Ivana Vukov, a special advisor to the Prime Minister of Croatia. She had championed digital reforms for several years and was committed to seeing them work, especially in the health sector where citizens were particularly concerned about service delivery.

Vukov had seen consulting firms and projects come and go, promising new and better technology in the hope of improving the uptake of the CEZIH, e-referral, and e-results systems, among others. These engagements delivered the technology and systems promised, but time and time again, the new technologies failed to yield the desired impacts.

The common response was that a new system would do better and what Croatia needed was just a newer and better version of the technology. Vukov was convinced that technological challenges were not the full story, however, and the "uptake problems" were more about user behavior and potential opposition to digital reforms across the sector. She recognized that a lot was unknown about this behavior and about why past technological solutions that offered so much promise did not work. For instance, she could not find solid answers about why doctors did not use the systems, why systems specialists seemed to have such little understanding of doctors and their behavior, why the new systems seemed to attract so much resistance, or why stakeholders in the system seemed to perceive the value of these digital systems so differently.

In looking for new avenues of policy engagement to address such unknowns, Vukov started investigating agile methods of policy implementation and PDIA, a new approach developed at the Building State Capability (BSC) program at Harvard's Center for International Development (CID). In such policy implementation methods, key stakeholders hone in on problems they wanted to solve, find entry points to work on in order to pursue solutions, identify ideas to act on in these entry point areas, act quickly (often called sprints or pushes) to test their ideas, learn what works and why, and try again until they learn how to solve the problem.

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This active process eschewed the typical policy model of planning and then implementing the plan by allowing actors to learn by doing. Vukov was intrigued at the way such processes engaged users early and often and focused on creating solutions that were actively used through an iterative problem-solving process. Surely, this kind of learning-by-doing method was well suited to the "digital uptake" problem in her country, especially given how little was known about the problem or how to solve it.

Curious about this methodology, in February 2019, Vukov organized an agile/PDIA workshop for more than 50 officials in Zagreb, ensuring key actors in the health sector who had been involved in the digital reforms were in attendance. They learned that agile and PDIA methods emphasize developing policy solutions that are actually used, with various case study examples offered for contemplation. Two cases focused on digital health records policy interventions in other countries. One country had progressed—and faltered—in much the same way as Croatia had, experiencing limited "uptake" over 15 years. But the other country adopted a more agile/PDIA approach and achieved more success, for users were actually using the platforms and data was being effectively shared.

The workshop—and case studies—generated enthusiasm amongst a small group of health sector officials about using agile methods to resuscitate and revive their digital policy interventions. At the same time, the officials still had questions about how to start, including:

- How will this method work in a bureaucratic setting?
- Would we have enough space to do something so different?
- How would we manage this "learn as you go" approach when we typically write and execute plans?

Forming a Team

Accepting that these were valid questions, Vukov nonetheless took advantage of the enthusiasm of these officials, viewing such an opportunity to try something new, and created a team to work on digital governance issues related to healthcare. This "e-health" team brought together members from different (and sometimes competing) bureaucratic institutions. Hrvoje Belani was from the Ministry of Health, a key policy authorizer. Jelena Curać and Tomislav Konig represented the Croatian Health Insurance Fund, the entity that controlled health financing in the country. Marko Brkić was from the Croatian Institute of Public Health, a central influencer over health policy. Dejan Vukelić was from the Central State Office for the Development of the Digital Society, which had been intimately engaged in procuring consultancies for the e-referrals and e-results systems. Vukov also joined the team, representing the Prime Minister's Office as the informal "customer" of the agile/PDIA work.

Although enthusiasm to work on this challenge was high, there was doubt about achieving results, emanating, in part, from past experience. All the team members were skilled professionals with good knowledge of the healthcare system, and a few had even been working on digital issues in this space for years. They thus felt that they knew everything there was to know about the problem and had already tried all that could be tried to solve it, questioning why they would now enjoy success after so many years of effort. The doubt also emanated from reservations they had about the fit of agile methods and the Croatian government. Some team members had experience working with agile methods to deploy IT solutions in private organizations and did not see how the method could work in an overly bureaucratic state setting. Lastly, doubt emanated from concerns about working as a team: the members all represented different organizations that did not always work well together, and they worried about being able to communicate successfully across their "silos". Once again, Vukov recognized these doubts. Nevertheless, she challenged the team to try to be agile.

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Getting to Work

The team assembled during a half day workshop to scope out their work and determine a plan of action. Vukov welcomed them (and two other teams working on different but related topics) and asked an outside coach to facilitate the afternoon's work. Vukov herself was ever-present but never directly engaged with any of the teams. She wanted to let everyone know she was available to help but not there to dominate.

The team itself blended people from different organizations and at different levels of seniority in the bureaucracy (although all were senior). While everyone was aware of the varied seniority of team members, they decided to engage equally in the work such that no one would be the sole decision maker or would direct the work. One member was assigned to be the "team leader", but this person really served as continuity facilitator rather than leader, where she or he was responsible for ensuring everyone was engaged, the work was progressing on schedule, etc. Beyond this role, the team agreed to lean on each other's advantages, deferring to each other based on experience, expertise and organizational affiliation, as these became relevant and important in the agile process.

The afternoon session was designed to mimic an agile/PDIA process. The coach provided an outline of the day to make sure everyone understood the full scope of what they would do and then began a series of timebound team activities. Each activity was structured as a "sprint" with a focal product that had to be produced in a limited period and a reporting period at the end of each sprint to the other groups, who role-played as clients.

The first activity required the team to identify or construct its key problem or the issue it wanted to address.

The e-health team went through various iterations of their problem construction in the allotted time, including "health service providers should only use e-referrals and not paper referrals" and "there are low levels of overall adoption and use, given that digital results are neither being generated nor used by health practitioners." When combined into a problem statement (the minimum viable product required at the end of the session), the team produced a problem statement that looked something like this:

> *"Robust IT systems are in place, but health practitioners do not use the systems properly—failing to stick to e-referrals and to use and generate information in the e-results system."*

The team then entered their next sprint to discuss what they thought was causing this problem—also called deconstruction—to see if they had a clear idea of the dimensions needed in a solution. This led to a robust conversation with several hypotheses about what was causing the problem, including:

- Medical practitioners are resisting change associated with "going digital".
- Medical practitioners do not know about the digital systems.
- Medical practitioners do not know how to access the digital systems.
- Medical practitioners enter data into the system incorrectly.

These "causes" were presented to the other groups in the room in a fishbone diagram to illustrate how these causes contribute to the problem at the end of the sprint. The presentation allowed for open discussion from outsiders, who questioned some of the team's initial thoughts and assumptions but generally endorsed their thinking. In the end, the team had identified their initial focal points for addressing the problem, the areas in which they would need to work to find solutions. These included establishing support for the policy intervention, informing people of the policy intervention, training people to use the policy intervention, and more.

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In the final sprint of the workshop, the team was asked to quickly identify actions it would take to start engaging with these focal points, an exercise we call entry point analysis. In this discussion, the team acknowledged that it had not actually engaged with medical practitioners in identifying the problem or its causes and that a learning-by-doing approach really required such interaction. They thus identified the need to engage users and decided to embark on a series of weekly "sprints" or action push periods to do so. They would test their initial ideas about what was causing the problem in each engagement and use these engagements to learn about actions they might take to address these causes and establish missing capabilities.

They broke their steps down for the week ahead by:

- Identifying who would speak to who each week.
- Explaining how they would organize meetings (in one-on-one meetings, focus group meetings, and more).
- Explaining their strategy for holding the meetings.
- Committing to a time when they would reconvene with their team to discuss what was learned during the week.

Initial Weekly Push Periods: Challenges and Learning About User Engagement

The team met weekly to discuss progress, with each person reporting out briefly by answering four questions (in writing before meetings and orally at the meetings):

- What did you do?
- What did you learn?
- What are you struggling with?
- What is next?

The first few sprints were challenging but important. Team members reported that it was difficult to organize meetings with people they identified for engagement, and thus most engagements did not happen. Hospital administrators said they needed permission to talk to the team, doctors noted that they had no time to meet, and experts who had been involved in past policy efforts said they were unavailable.

The team could have seen this experience as a setback or even evidence that the "new way of working" was a poor fit for Croatia. Vukov and the outside coach helped the team to interpret their struggles more constructively, however, as lessons about a missing policy-making capability in their system and another cause of policy failure. This missing capability was never explicitly defined but could have read something like "we cannot effectively engage with users of the systems given silos across the health system."

Vukov encouraged the team to push into this issue aggressively, recognizing that they themselves were evidence of better engagement in the health system given that they represented different organizations who did not routinely speak to each other but were now meeting, sharing, and learning together.

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But was this possible? Were they allowed to contact health centers and hear about how the system is used? The team members were used to working on improving the system from the comfort of their offices and had not done this kind of work before, so they had to spend some "sprinting time" just learning how to set their shadowing engagements up. As such, the first sprint involved identifying where they would do the shadowing and whose permission they would need to make it happen. The second sprint involved obtaining permission and organizing the activity. The third sprint was when the actual shadowing occurred.

The team learned a lot in these sprints/pushes, mostly about how they could work together to get things done. They learned that different team members needed to "step up" for different things—making connections with hospitals, working within their bureaucratic structures, and more—for their cumulative work to prevail. They also learned that they all cared a lot about the problem they were addressing and that they could all be depended upon to work. Finally, they learned that they had "air cover" in the work given that Vukov provided an ever-present and useful link to the Prime Minister's Office. She kept them encouraged, met with them regularly to learn about their progress, and was helpful whenever they needed extra authorization.

Continued Weekly Sprints: Learning by Engaging with Users

The team's initial shadowing activities took place in a health center in Zagreb. The initial contact with this center was informal, building on an e-health team member's outreach to a professional contact working in the center's IT department. This contact was interested in having the e-health team come in, learn about how he was using the in-house system in the center, and hear his concerns about the challenges he has had in connecting this in-house system to the central system (CEZIH).

This contact suggested the team email the health center administrator to request permission to proceed with shadowing various health workers. This proved a useful tactic and lesson to the team overall, as an email sent by the Ministry of Health's Hrvoje Belani (and cc'ing Vukov) was enough for the health center to feel there was enough seriousness and authority to allow the team to undertake the proposed activity.

The team set out to physically shadow health practitioners for hours and days, trying to understand the inner workings of the use, or lack thereof, of the digital healthcare system. They met with members of various departments in the hospital during their weekly sprints and found that hospital workers were very open to sharing their experiences. There seemed to be very little discomfort in having government representatives overlooking their day-to-day work, especially as the shadowing was intentionally designed to not be disruptive to the medical workers. The team simply followed a health practitioner and observed how they interacted with the digital system, only asking questions when necessary.

This process was, however, time intensive for the e-health team members, who also maintained their usual work schedules. The agile/PDIA work was but one item on their busy agendas, and each member had periods where they struggled to find enough time. Nonetheless, the weekly meetings gave members opportunities to share such constraints and foster a safe space to honestly work out solutions. This typically involved a team member communicating that she or he was overwhelmed and needed a week away and others stepping in to take responsibility for her or his work for the week. This kind of communication was open and fluid within the team, and such work-sharing pivots happened on several occasions.

Such adaptive behavior led to growing intra-team trust and accountability, which was also growing from the common journey they were all experiencing together. They were all finding the user engagement and learning refreshing and were identifying new dimensions of the causes (missing capabilities) they were addressing and ideas to tackle these causes.

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For instance:

→ They learned—in support of their earlier view—that there was a problem with support for digital reforms. But this was not because users opposed digital reforms. Rather, they learned that most hospitals and health centers already had their own systems in place and were frustrated that these legacy systems were not factored in when the new policies were introduced.

→ They found that there were indeed gaps in knowledge about the system, but not amongst all users. Health center administrators were very aware of CEZIH's functionalities, but these had not been communicated to doctors and other health practitioners.

→ Also, in support of their earlier view, they learned that many health practitioners did not know how to access and use the CEZIH system. This was not because practitioners could not access digital systems generally, but because they had to use multiple systems, carrying and keeping track of several access cards to health center, hospital, and other systems. As a result, practitioners often struggled to remember how to access the CEZIH system and had become increasingly frustrated with digital systems altogether. As one practitioner noted, "our problem is to help and treat patients, not to put results into a system".

→ Confirming their initial hypothesis, they learned that data was often entered incorrectly into the CEZIH system, but they also gained new information about this problem as well. Bad and unreliable data, especially about referrals, proliferated because administrators and hospital managers entered data on behalf of doctors, who struggled with the activity. Hospital administrators did this because they knew that their hospitals would receive less funding if referrals were not entered into the system given an incentive created by CEZIH designers. However, this resulted in inaccurate data about referrals, which undermined confidence in the data and was a key reason everyone in the healthcare system still trusted and preferred paper referrals more than electronic referrals.

Final Sprints: Working Towards Solutions

The team used the shadowing process to go beyond identifying the problems (or causes) they wanted to solve. They also started to develop proposals for solutions to these issues and even began experimenting with these ideas.

For instance, they proposed engaging hospital administrator focus groups to learn about the interaction of legacy systems and the CEZIH system so that they could build support for the CEZIH system with this key user group. They presented this idea to some hospital and health center administrators to co-design the focus group. They then started holding the focus groups every few weeks to bring administrators together, help them see common ground in terms of past experience, and build new ideas to improve usability and use of the CEZIH system.

The team also proposed communication and training programs to increase doctors' knowledge about the CEZIH system, especially those aspects of the system that would be most useful to the doctors so that doctors felt incentivized to learn about the system. These programs were modest and held regularly with small groups who self-nominated themselves to participate. Participants from these programs were key in bringing doctors together with administrators and systems specialists to generate ideas on how to improve usability and use of the CEZIH system. These ideas were shared amongst doctors in the Ministry of Health and some health centers and gained a lot of positive support.

The e-health team continued meeting weekly throughout this period, sharing lessons about what was done, what was learned, where they were struggling, and what was next. The meetings were short but ensured that everyone learned from everyone else (in a thick model of learning by doing) and all next steps were coordinated.

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The ideas emanating from these weekly meetings were then turned into active experiments or pilot activities that the team could do—and learn from—quickly. For example, the team had learned that doctors were frustrated by having to use multiple access cards to access multiple systems in hospitals and often failed to use the CEZIH system because of this burden. In coordination with doctors and administrators, the e-health team initiated a small "single card access" system pilot in one health center to respond to this barrier. The goal was to try and unify the access methods doctors needed to deploy when using their hospital, health center, and CEZIH systems and to increase doctor uptake of the CEZIH system. The idea was that all three systems would agree to the same access protocol so that doctors did not have to manage multiple protocols. The results of the pilot were promising and showed the team that doctors could be empowered to use the system better with small, practical, and cost-efficient solutions.

Based on activities like this, the team was able to try out new ideas and learn what worked and why in solving the problems they were facing. Vukov was particularly impressed by the fact that the ideas were all practical, cost efficient, and co-designed with users. The team had not at any point advocated for a new IT system or caused anyone to question the value of CEZIH; rather, their work added value to past policies and contributed to a strong narrative that the government was committed to building upon its prior investments rather than simply replacing them.

Key Takeaways

Vukov and the team communicated their experiences to the Prime Minister in December 2019, about 7 months after starting their work. They did so through a high-level executive summary proposing scaled pilots of 5 recommendations they had already been working on and experimenting with in the largest health institution in the country and where they had seen positive results.

Vukov also wanted the team to report on the lessons learned about working together as a team through this agile/PDIA process given that this was not common to the Croatian government. Their reflections gave Vukov and others insight into the key ingredients needed to empower such work and working arrangements in places like Croatia. The most important "ingredients" mentioned related to concepts like trust, safety, and accountability in teamwork:

→ With respect to trust and safety in the team, Tomislav, for example, described how he initially felt some reservations about speaking his mind and sharing his opinions. He did not know if his comments would be well received by his boss, Jelena, who was also present in team meetings. He noted that he only started to feel safe to contribute bravely after a few sprints when he confirmed that everyone on the team was engaging in a "flatter" manner than normal and taking risks.

→ Trust was also seen to have emerged because each member of the team could see that other members were committed to solving the problem. This was demonstrated by the consistent way everyone worked on their weekly tasks, which showed that they were all accountable to each other.

→ Additionally, the team developed a norm of learning from each other, which created a high level of respect across the group. This respect was empowering, leading Tomislav to state that he eventually "grew comfortable enough to sometimes [even] challenge [his] boss's opinions" whenever he believed there was merit to his thinking. He knew he was safe in so doing.

→ Finally, they found the work exciting and saw the value of learning by doing.

The team was proud of their work and said that the agile approach had allowed them to "break down silos" and empower communication across departments and organizations. This kind of communication had not previously been attempted and was not even considered possible. But the team had learned that communication and partnership opened new avenues for policy. Jelena, in particular, expressed that "she believed she knew everything there was to know about the e-healthcare sector until she began her journey through the agile process with the team." Much of this learning came from working closely and consistently on a team whose members had diverse backgrounds. The lessons learned from each other had already spilled over beyond their agile work (as team members were helping each other out on other activities as well) and showed that lessons learned in one positive team experience of iterative "learning by doing" can be lasting, fostering a new capability in the sector.

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